

## **Analysis of Budget Policy on Agriculture under Different Governance Regimes**

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## **Analysis of Budget Policy on Agriculture under Different Governance Regimes**

### Abstract

Towards resolving the role of governance in economic development, a model of factual-counterfactual analysis was formulated to determine the relative preference of two different regimes for agriculture in the public expenditure budget of developing countries. Application to Nigeria produced results indicating that (a) the military showed greater preference for capital allocations to agriculture in the budget while the civil regime showed greater preference for recurrent allocation, which reflects the presence of strong opposition during the civilian regime that tends to over blow the size of civil service workforce engaged in agricultural policy administration together with the attendant recurrent commitments such as personal emoluments and general overhead; and (b) on the whole the civil regime reveals greater preference in terms of the total budget than the military regime, which suggests that the incremental recurrent expenditure during the civilian regime more than offsets the incremental capital expenditure during the military regime. Thus the scope for budget restructuring in favour agricultural growth through higher capital allocations in the public expenditure budget exists in the present democratic dispensation to a larger extent than during the previous dictatorship under the military regime.

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**Key words** – *budget policy; governance regimes; factual-counterfactual; preference for agriculture; capital allocation; recurrent allocation; total allocation.*

**JEL:** *H5; H6*

## **Analysis of Budget Policy on Agriculture under Different Governance Regimes**

### **Introduction**

The resurgence of analytical attention on the policy environments for agricultural development owes largely to the evidenced failure of the perennial focus on technology environments to yield desired results in developing countries. A copious instance is the failure of green revolution technologies to significantly contribute to food security in Africa as it did in Asia and other parts of the world (Ayoola 2004, CTA 2000). Particularly within this context the role of public expenditure budget as an instrument of agricultural policy becomes visible, which is an aspect of the on-going debate on the nexus between governance and economic development. Hence the concerns of Food and Agriculture Organization (FAO) and African Union (AU) to stipulate some minimum floors (20% and 25% respectively) as mandatory allocations to agriculture in the national budget of developing countries. However these and other recommendations bordering on the best budget practices and other non-budget governance issues have been generally ignored, which accounts for the persistence of sluggish agriculture in these countries.

Specifically in the ensuing debate the question is being asked, whether or not the widespread cases of military governance in Africa in recent past had a role to play in the poor budget performance of the countries involved. Certainly this question has emanated in the case of Nigeria based on progress recorded in terms higher growth rates of agriculture following the regime change from a continuous 15-year military regime to the present civilian regime. Hitherto, the successive groups of military officers in the country had often predicated their perceived need for radical regime change on the need to improve governance, with particular reference to budget performance.

At the present stage the main problem pertains to the analytics of these issues, especially the methodological aspects of formulating appropriate model structures for tracing regime

change effects on the public agricultural budget. Initially a stylized human development index of the UNDP type was constructed to track the reform-induced changes in the budget structure under the military regime (Ayoola 1992). However the analysis was largely focused on determining the scope of the active budget restructuring in favour of social services rather than on tracking the accruing budget savings or waste reductions as sources of incremental allocations to agriculture in the public expenditure budget. Also, a more robust analytical model of agricultural performance of the public expenditure budget was subsequently formulated and applied to Nigerian data (Ayoola and Oboh 1999) based on the “Stone-Geary” utility functions (Henderson 1980). But also the outcome of the analysis failed to attribute the observed effect of budget changes to regime changes explicitly as desired.

Therefore this study proposes an alternative model of the analysis in terms of the factual-counterfactual trends, with a view to estimating the time line of the relative attention accorded agriculture in the budget reform process. Specifically the model has the added advantage to answer the question of whether agriculture budget policy is regime neutral or not, thereby yielding an empirical basis to address the implications of regime changes for agricultural performance of developing countries in financial budgets. It is envisaged that the results of the study would help in specifying the point of convergence of policy and politics in the development process, thereby representing a definite contribution of agricultural economics to critical policy issues.

### **The Formal Model**

The factual-counterfactual model of budget analysis is akin to the popular before-and-after methodologies, which is popular in the economic literature for policy impact assessment (Kahnehman, 1982; Ayoola, 1994; Spellman, 2001). Figure 1 describes the model structure, conduct and performance in terms of the following elements.

1. Given:

- A budget cycle in a particular year ( $t$ ) for allocating and implementing public funds to agriculture and non-agriculture in the economy; during the cycle the various agencies of the government submit budget proposals at some stipulated times for consideration by the apex government authorities.
- A reference regime or time frame in the past ( $t < t_0$ ) under military governance whereby proposed funds were allocated by *discretionary* approval without the involvement of a legislature; in the circumstance the military authorities apply the rule of thumb in excising the choice of projects and financial allocations for different purposes.
- A successive regime or time frame in the present ( $t_0 < t$ ) under the civil governance whereby proposed funds were allocated after a debate and vote in the legislature; the civil authorities follow the democratic principles entrenched in the constitution in exercising the choice of projects and financial allocations for different purposes.

## 2. Assume:

- That the budget process is the major source of fund to all economic sectors; other sources possibly include foreign aids anticipated and unanticipated as well as windfall revenues emanating from price increases of critical export commodities such as petroleum.
- That the different budget categories are additive and mutually reinforcing; i.e. the capital and recurrent heads make up the total allocation for the agricultural sector, without considering the possibility of applying a portion of these to other sectors.
- That the budget allocations truly reflect the preferences of a government authority for agriculture in such a manner that greater funds imply higher commitments to food security and other concerns of the people.

- That the revealed preference of the government for agriculture in the budget is a true reflection of the preference of the people for agricultural development, consistent with the theoretic social welfare function (Killick 1981).

### 3. Required:

- To determine if the preference of the public authorities for agriculture in the public expenditure budget during one regime or time frame is smaller or greater than the preference of public authorities for agriculture during another regime or timeframe; that is, whether or not the budget allocations follow the same trend as from some time past, ( $t: t_{-1} < t < t_0$ ) through to the present time ( $t: t_0 < t < t_1$ );
- To determine if the preference of public authorities during a given régime or time frame is the same or different for different budget categories during the same regime or timeframe, and during another regime or time frame; that is, whether or not the budget allocations follow the same trend within the same regime or timeframe (either  $t_{-1} < t < t_0$  or  $t_0 < t < t_1$ ) or between two regimes or time frame.

### 4. Construct:

- A different trend line for each of the two regimes or time frames (line AB; line BC); line AB\* is an imaginary mirror image of the line B\* representing another path that line AB could possibly follow instead of line AB.
- A projection of the trend line for the past regime or time frame (line AB) beyond the end point in time  $t_0$  to the present point in time  $t_1$ ; hence straight line BD as an extension of AB.

### 5. Proof:

- Compared - the successive points in time on line BC (which is known as the *factual*) with corresponding points in time on line BD (which is known as the *counterfactual*).
- Determined - the preference for agriculture in the public budget during a particular regime or time frame is higher or lower than the present regime or time frame depending on the relative positions of the factual trend and the counterfactual trend.

The model performance depends on availability of secondary data on the budget as may be disaggregated in particular countries; that is, both the ex-ante and ex-post analyses of the data are possible within the model structure depending on whether the data include initial allocations or actual budget expenditures. Such data are readily available and published in most countries by the public agency for government statistics.

In evaluating the performance of the factual-counterfactual model, we consider its simplicity as a measure of changes in policy variables resulting from economic reforms consequent upon regime changes, which is devoid of cumbersome econometric pre-conditions.

### **Empirical Application to Nigeria**

In Nigeria since independence from British rule in 1960, the cumulative period of military regime is longer than that of civil regime: 1966-1979 (13 years); 1983-1999 (17 years). Under the present democratic rule (1999 till date), efforts have been made to undertake economic and political reforms based on democratic principles and good governance, which involves budget reforms and with an implicit motive to forestall further intervention by the military. In the reform process agriculture takes a pride of place through a budget policy that puts greater emphasis on farm production and export in terms of the special (presidential) initiatives for particular commodities. This is also consistent with policy changes in the donor community more towards “ownership” in aid provision. In particular this finds expression in the paradigm shift of the World Bank from “structural adjustment lending” to “development

policy lending” as well as the EU in terms of the performance-based conditionality through “budget support” rather than the previous result-based conditionality oriented towards intermediate targets (Zattler 2005).

In this situation an analysis of budget policy of the country is predicated upon the need to reveal the preference of the government for agriculture in the annual budget. This would help address the twin concerns of the policy authorities to generate “democratic dividends” and the affinity of donor community for fiscal responsibility, with special reference to the agricultural sector of the country.

### **Data and Analysis**

In applying the model, data were collected through secondary sources from Benue State in the north-central geo-political zone, which is popularly known as the “food basket” of Nigeria based on its vast agricultural potential. These include published and unpublished data on recurrent and capital estimates. Agriculture in the budget comprises the provisions for different heads, namely: crops and rural development; livestock; fisheries; forestry; the State Tractor Hiring Agency (BENTHA); the state Agricultural and Rural Development Authority (BENARDA); the state Agricultural Development Corporation (ADC); and, the state college of agriculture. The summary of the data is presented on Table 1 with some descriptive features of the consolidated allocations to agriculture sector in terms of the disparities between initial and actual allocations and between recurrent and capital allocations, across two governance regimes – military (1994-1999) and civilian (1999-2003).

To test the null hypothesis of no difference in the allocations to agriculture between the military and civilian regimes, the formal model was specified and applied, first by estimating a set of trend equations based on simple linear regression model of the form:  $Y = a + bT$ ; where Y represents the budget allocation to agriculture of a particular class and T is the trend variable in years; a and b are the shift and slope parameters respectively. One of the trend



equations represents the *factual* which covers the current period of civilian governance (2000-2004), while the other trend equation covers the past period of military governance (1994-1999), which when projected into the current period represents the *counterfactual*. Thus it is possible to draw comparisons in budget allocations between the periods for given episodes or between the episodes for given periods. Nevertheless as generally recognized, mere extrapolation based on trends fails to incorporate the structural differences or changes implicit in the allocation behaviour of the policy authorities.

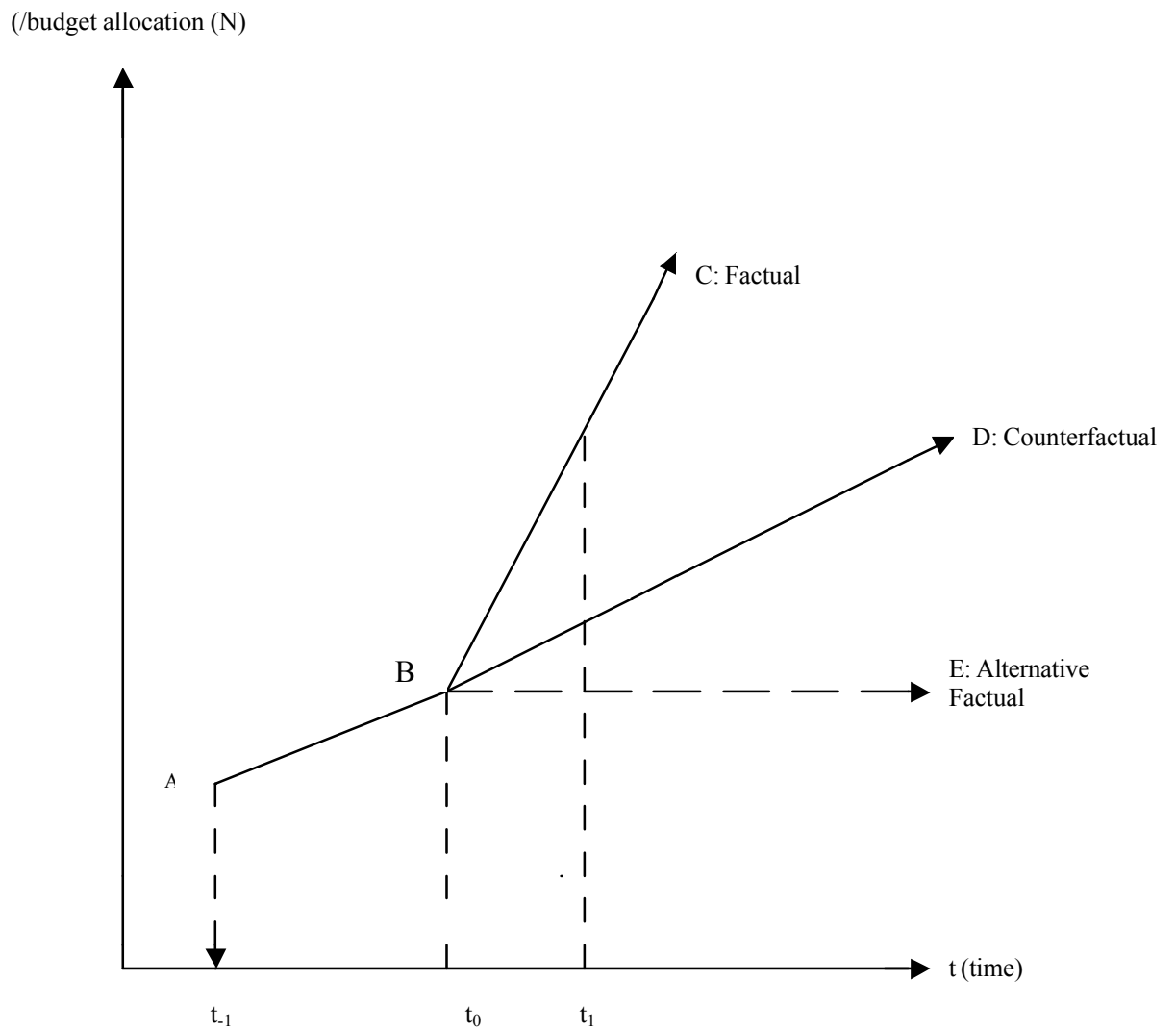


Figure 1: Factual-Counterfactual Model of Budget Performance under Two Governance Regimes

The choice of five years in each case is essentially to relate the results to recent events in the policy environment such as the series of externally induced policy changes particularly the World Bank/IMF sponsored structural adjustment of the mid-1980s to mid-1990s. Besides, it is also of considerable analytical advantage that the analysis does not extend too much into the past, as trend projections perform poorly as we move further away from actual experience owing to increasing margins of error associated with regression estimates (Kmenta 1971).

## **Results and Discussion**

The parameter estimates and predicted values are presented in Table 2. Upon projection we arrive at the estimates of the shift and slope parameters for separate budget periods as well as the predicted values and divergences of the relevant variables. The regression estimates were statistically significant at 5% probability level. Judging from the signs of predicted divergences, it appears that the civilian regime has made greater fund provision to agriculture than the military regime in respect of the initial recurrent allocation, actual recurrent allocation, initial total allocation, and actual total allocation. On the other hand, it appears that the military regime has made greater provision for agriculture than the military in terms of initial capital allocation and actual capital allocation to agriculture.

On the other hand the greater recurrent allocations under the civil regime imply that budget policy at that time revealed greater preference for personal emoluments and overhead, *ceteris paribus*. This agrees with the observations during the current civil regime that is mostly preoccupied by reform measures to divest government from direct production ventures and to promote private sector initiatives. A notable example is the eventual privatization of the National Fertilizer Company (NAFCON) that represented a huge failure among similar public-owned enterprises in the sector financed from capital budget votes. Thus the consideration of capital allocations to agriculture in the public budget has manifestly reduced from what used to be the case under the military. Rather the burden of recurrent expenditure looms larger as efforts to down-size the public work force became difficult in the face of civil opposition and agitations against retrenchment.

Table 1: Initial and Actual Allocations to Agriculture, Benue State, 1994-2003 <sup>1</sup>

Year	Initial allocation(Nmillions)		Actual allocation(Nmillions)	
	Capital	Recurrent	Capital	Recurrent
1994	47.1	82.8	7.3	160.1
1995	73.4	110.0	51.5	158.5
1996	192.6	102.9	70.3	132.3
1997	110.4	108.6	75.1	89.7
1998	180.4	123.7	57.3	112.0
1999	313.5	280.7	20.9	293.2
2000	552.9	285.0	58.9	527.5
2001	661.9	592.4	146.8	675.8
2002	1166.4	746.3	106.3	703.9
2003	1189.0	874.0	303.3	638.1

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<sup>1</sup> Source – Benue State Government *Gazettes* (various issues, 1994-2003); Benue State Government *Budget Estimates* (various issues, 1994-2003)

TABLE 2: Regression estimates and predicted parameter values of the Factual-Counterfactual model

Variable	Initial capital allocation	Actual capital expenditure	Initial recurrent allocation	Actual recurrent expenditure	Initial total allocation	Actual total expenditure
Shift estimates:						
• Factual	0.176	2.760	0.126	0.133	0.302	0.161
• Counterfactual	4.880	2.020	4.800	6.620	9.700	8.660
• Divergence	-4.704	0.740	-4.674	-6.487	-9.398	-8.499
Slope estimates:						
• Factual	3.720	1.140	2.52	7.700	6.240	1.890
• Counterfactual	3.700	2.500	-7.8	-2.500	-3.900	-2.200
• Divergence	0.020	-1.360	10.32	10.200	10.140	4.090
Predicted values:						
• Factual	33.656	13.020	22.806	69.433	56.462	17.171
• Counterfactual	56.680	37.020	-104.4	-28.382	-44.900	-22.140
• Divergence	-23.024	-24.000	127.206	97.813	101.362	39.311
t – values**	34.852	12.037	73.275	121.545	165.9	39.311

\*\*=Significant at 1%;

In any case, the greater volume of total allocation to agriculture under the civil regime probably suggests that the sector enjoyed high preference in terms of funding at that time fairs better than the military era. Thus the scope exists for budget restructuring towards better performance of the sector at the present level of available budget funds. For instance, a budget policy that directs more funds toward improving the extension information and rural

infrastructure would stimulate agricultural growth faster than fund flows to non-performing public capital projects.

Finally the results indicate that both regimes are consistent in budget implementation in the sense that for each budget category (capital/recurrent) the same regime has revealed preference for the initial allocation and actual allocation together. This suggests that there is no basis to infer that one regime exhibits budget discipline more or less than the other. By budget discipline is meant the ability of public authorities to achieve high correlations between the sets of initial budget allocations and the actual budget allocations. The issue emanates from the general observation that in several cases the initial allocations and actual allocations have little or no bearing to each other, so the agricultural population suffers from what can be termed *budget illusion*. Budget illusion is characterized by euphoria among the people who are satisfied with the government for making initial allocations but become subsequently disappointed with the same government for not following through with its budget commitment. The presence of budget illusion in both regimes is indicated by the observed divergences together between the factual and counterfactual estimates at the same points in time. The difference is due to the fact that the military regime, having no opposition, tends to suppress the manifestation of budget illusion, unlike the civil regime. Indeed in the current times the president has faced intense criticism from the National Assembly sometimes bordering on threats of impeachment based on accusations of unfaithful implementation of the budget. This allows for budget accountability which thrives under the civil regime that seeks approval and reports back to the legislature on issues of budget.

### **Summary and Conclusions**

Developing country agriculture depends largely on budget policy of the government in power, so it is important to determine the governance regimes that favour the sector more in the budget process. Towards this end an analytical framework based on the factual-counterfactual helps to trace the trend of budget allocation behaviour of the government from

past to the present with a view to drawing comparison on the basis of budget performance. In Nigeria results of the analysis indicate that the military showed greater preference for capital allocations to agriculture in the budget while the civil regime showed greater preference for recurrent expenditure. This reflects the presence of strong opposition during the civilian regime that tends to over blow the size of civil service workforce with the attendant recurrent commitments such as personal emoluments and general overhead.

On the whole the civil regime reveals greater preference in terms of the total budget than the military regime, which suggests that the incremental recurrent expenditure during the civilian regime more than offsets the incremental capital expenditure during the military regime. Thus the scope for budget restructuring in favour agricultural growth through higher capital allocations in the public expenditure budget exists in the present democratic dispensation to a larger extent than during the previous dictatorship under the military regime.

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